

DRAFT  
**Engineering Evaluation Report**  
**Plant 20459: Tesla Motors, Inc. (Fremont, CA)**  
**Application 30204: South Paint Shop Modification Project**

**BACKGROUND:**

Tesla Inc. has submitted an application for an Authority to Construct and/or Permit to Operate to install a new coating line in the existing South Paint Shop (SPS) at their facility located in Fremont, California. The new SPS coating line will coat 312,000 cars per year. Tesla will utilize the current metal coating sources and some old sources that were decommissioned in 2015. The plastic coating operation in SPS will remain active and in operation as permitted. There are no changes proposed for the plastic coating line.

**PROJECT DESCRIPTION:**

Tesla will utilize some existing sources and some new sources to construct the new SPS coating line. The new SPS coating line will utilize a "3-water" process. The "3-water" process does not require oven drying between applications. Coatings are applied in a single stage booth for each different coating zone (Primer, Basecoat, and Clearcoat) separated by partitions to contain airflow. The primer and basecoat booths contain each an ambient flash zone. The temperature and humidity within the flash zone is maintained by two air supply units (two natural gas fired units with 1.5 MMBtu/hr firing rate) for each primer and basecoat zones. All the booths (primer, basecoat and clearcoat) are abated by one water scrubber, three filter houses, and three thermal oxidizers. Approximately 60%, 50%, and 67% of the exhaust air from primer, basecoat, and clearcoat filter houses will be recirculated through the booth, respectively.

The purge solvent will be used in all three Primer, Basecoat, and Clearcoat booths to clean the paint guns and associated coating supply lines when they change color or coating material. Most of the purge solvent is collected in a closed container and shipped off site as hazardous waste. The fugitive emissions from purge solvent are abated by all three booth thermal oxidizers. The E-coat oven (S-1002) and sealant oven (S-1007) are abated by thermal oxidizer A-1002 and A-1007, respectively.

The final repair is a last stage of the coating process. The autobody is manually inspected for coating flaws. In many cases, the repair may only require polishing and no coating applied or a flaw may be observed that requires spot repair, heavy repair, (i.e. repainting of door or panel), or complete recoating. If complete recoating is required, the autobody will be conveyed back to the prime booth.

The 'Project Scope' below describes the source status with associated abatement device(s). Appendix A has a process flow diagram with more details.

**PROJECT SCOPE:**

Tesla will continue to operate the following existing sources at the SPS:

S-1001: (E-Coat Dip Tank System); and

S-1002: (E-Coat Oven) with Built in E-Coat Sanding Air Supply House (ASU)

Abated by A-1002 E-Coat Thermal Oxidizer

S-4042: Pretreatment Dip Tank

The following sources are currently sitting idle from 2015 but still retain their District permits. Tesla will utilize the following sources for SPS coating operations:

S-1005: (Underbody Sealing); and

S-1007: (Sealer Oven),

Abated by A-1007 Sealer Thermal Oxidizer

S-4043: E-Coat Sanding Booth

Tesla proposed to add following new sources to the SPS coating operations:

S-4033: LASD Sealing with built in Air Supply House (ASU);

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S-4034: Interior Sealing;  
 S-4035: Manual Sealing;  
 S-4036: Prime Booth & Flash Zone with built in Air Supply House (ASU);  
 Abated by Thermal Oxidizer A-30180, Water Scrubber A-30184, and Filter House A-30185  
 S-4037: Basecoat Booth & Flash Zone with built in Air Supply House (ASU);  
 Abated by Thermal Oxidizer A-30181, Water Scrubber A-30184, and Filter House A-30186  
 S-4038: Clearcoat Booth with built in Air Supply House (ASU);  
 Abated by Thermal Oxidizer A-30182, Water Scrubber A-30184, and Filter House A-30187  
 S-4039: Primer and Clearcoat Oven;  
 Abated by Thermal Oxidizer A-30183  
 S-4040: Final Repair; and  
 S-4041: Purge Solvents used inside Prime, Basecoat, and Clearcoat booths  
 Abated by Thermal Oxidizer A-30180, A-30181, and A30182

**EMISSIONS CALCULATIONS:**

Precursor Organic Compound (POC) emissions from the above sources are either from the coating of vehicles (non-combustion) and from combustion of natural gas. The proposed POC emissions from the above sources are summarized in Table 1. It should be noted that Table 1 does not include E-Coat Sanding Booth (S-4043) because the sanding operation within S-4043 is not estimated to emit POCs.

<b>Table 1: POC Emissions from SPS Coating Operations</b>						
<b>Process Area</b>	<b>Proposed Source ID</b>	<b>Proposed Source Description</b>	<b>Annual Emissions</b>	<b>Daily Emissions</b>	<b>Hourly Emissions</b>	<b>Annual Emissions</b>
			<b>tons/year</b>	<b>lbs/day</b>	<b>lbs/hr</b>	<b>lb/yr</b>
<b>E-Coat</b>	S-1001	E-Coat Dip Tank System	0.17	0.93	0.04	339
	S-1002	E-coat Oven	14.88	81.53	3.4	29,757
<b>Sealant</b>	S-4033	LASD Sealing	4.98E-06	2.73E-05	1.14E-06	9.95E-03
	S-4034	Interior Sealing	0.01	0.07	0.003	27
	S-4035	Manual Sealing	0.01	0.07	0.003	27
	S-1005	Underbody Sealing	0.01	0.07	0.003	27
	S-1007	Sealer Oven	29.51	176.59	7.4	59,027
<b>Body Painting</b>	S-4036	Prime Booth Zone	40.06	219.5	9	80,127
	S-4037	Basecoat Booth Zone	106.39	583.0	24	212,779
	S-4038	Clearcoat Booth Zone	81.64	447.4	18.6	163,287
	S-4039	Prime & Clearcoat Oven	13.11	71.8	3	26,214
<b>Final Inspection</b>	S-4040	Final Repair	0.36	3.95	0.2	721
<b>Purge Solvents</b>	S-4041	Purge Solvents	12.9	70.7	3	25,809
<b>Total POC Emissions from SPS</b>			<b>299.07</b>	<b>1655.58</b>	<b>69.0</b>	<b>598,140</b>

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Table 2 summarizes the proposed annual combustion emissions from the ovens and abatement devices that are part of the proposed SPS project.

<b>Table 2: Annual Combustion Emissions from South Paint Shop Coating Operations</b>							
Source Number	Source Description	Max Firing Rate (MMBtu/hr)	Criteria Pollutant Emissions (lbs/year)				
			CO	NOx	PM <sub>10</sub> /PM <sub>2.5</sub>	SOx	VOC
S-1002	E-Coat Oven	7.62	5,467.7	6,506.6	494.7	39	358
S-1002	E-Coat Sanding Air Supply House (ASU)	2.9	2,086.4	2,482.8	188.8	14.9	136.6
S-4033	LASD Sealer Air Supply House (ASU)	7.5	5,395.7	6,421	488.2	38.5	352.3
S-4036	Prime Booth Zone Air Supply House (ASU)	5	3,597.2	4,280.6	325.5	25.7	235.5
S-4037	Basecoat Booth Zone Air Supply House (ASU)	5	3,597.2	4,280.6	325.5	25.7	235.5
S-4038	Clearcoat Booth Zone Air Supply House (ASU)	5	3,597.2	4,280.6	325.5	25.7	235.5
S-4039	Primer and Clearcoat Oven Burner	6.19	4,453.3	5,299.4	402.9	31.8	291.6
A-1002	E-Coat TO	10	69,888	8,736	650.9	51.39	471.1
A-1007	Sealer TO	10	69,888	8,736	650.9	51.39	471.1
A-30180	Prime Booth TO	10	1,485.1	8,736	650.9	51.39	471.1
A-30181	Basecoat Booth TO	5	218.4	4,368	325.5	25.7	235.5
A-30182	Clearcoat Booth TO	5	262.1	4,368	325.5	25.7	235.5
A-30183	Prime and Clearcoat Oven TO	5	218.4	4,368	325.5	25.7	235.5
<b>Total</b>			<b>170,157.7</b>	<b>72,863.7</b>	<b>5480.1</b>	<b>432.6</b>	<b>3965.8</b>

It can be seen from Table 1 and 2 that the combined POC emissions from painting and combustion sources at the SPS are 602,106 lbs/yr (598,140 lb/yr + 3,966 lb/yr) (301.1 TPY).

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Table 3 summarizes the sources and their associated abatement, and the underlying engineering basis that was used to estimate the POC emissions from primer, basecoat, and clearcoat spray booths and their associated oven emissions, including fugitive emissions, which are not captured or routed to POC abatement. The booth/oven split of 70%/30% is estimated for primer and basecoat and 85%/15% for clearcoat. In other words, 70% of the emissions associated with primer and basecoat coating applied and 85% of the clearcoat coating applied will occur in the spray booths and the remaining occur in the ovens. In addition, an efficiency of 70% is estimated captured of these emissions occurring within the booth and ovens and routed to the thermal oxidizers for abatement. Hence, 30% of all emissions estimated from the booth/oven split are fugitive. 95% of the emissions sent from the Zeolite Wheel to the thermal oxidizers are abated. Hence, 5% of the emissions sent to the thermal oxidizer from the Zeolite Wheel are fugitive emissions.

<b>Table 3: POC Abatement Status of South Paint Shop Coating Sources</b>						
Source #	Source Description	POC Abated?	POC abated by	POC booth and/or oven capture efficiency (%)	Concentrator Wheel and/or Abatement device POC destruction efficiency (% by wt.)	Overall efficiency (%)
1001	E-Coat Dip Tank System	No	NA			
1002	E-coat Oven	Yes	A-1002	70%	95%	66.5%
4033	LASD Sealing	No	NA	70%	95%	66.5%
4034	Interior Sealing	No	NA			
4035	Manual Sealing	No	NA			
1005	Underbody Sealing	No	NA			
1007	Sealer Oven	Yes	A-1007			
4036	Prime Booth Zone	Yes	Zeolite Wheel & A-30180	70%	95%	66.5%
4037	Basecoat Booth Zone	Yes	Zeolite Wheel & A-30181	70%	95%	66.5%
4038	Clearcoat Booth Zone	Yes	Zeolite Wheel & A-30182	70%	95%	66.5%
4039	Prime & Clearcoat Oven	Yes	A-30183	70%	95%	66.5%
4040	Final Repair	No				
4041	Purge Solvent	Yes	Zeolite Wheel & A-30180, Zeolite Wheel & A-30181, Zeolite Wheel & A-30182	70%	95%	66.5%

The following sample calculations are provided to illustrate how the POC emissions were estimated in Table 1.

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**POC Emissions from Clearcoat Booth Zone S-4038:**

For example, Tesla will use 12219 gallons/year of Tinted Clearcoat Sunset Red, 153415 gallons/yr of Premium Clearcoat, and 1707 gallons/yr of Glycol Ether PM to manufacture 312,000 cars per year.

The VOC content of Tinted Clearcoat Sunset Red, Premium Clearcoat, and Glycol Ether PM is 3.08 lbs/gal, 3.07 lbs/gal, and 7.64 lbs/gal, respectively. Therefore, the total unabated VOC (~POC) emissions at S-4038 (Clearcoat Booth) is 443,413 lbs/yr ( $12219 \times 3.08 + 153415 \times 3.07 + 1707 \times 7.64$ ). The calculations assume 70% of the emissions 310,389 lbs/yr ( $443,413 \times 0.70$ ) occur in the spray booth and the remaining 30% of the emissions 133,024 lbs/yr ( $443,413 \times 0.30$ ) (i.e. 66.51 TPY) occur in the clearcoat oven (S-4039) associated with the spray booths S-4038.

Assuming 95% RTO abatement efficiency, POC emissions after abatement are 14,743 lbs/yr ( $443,413 \times 0.7 \times 0.95 (1-0.95)$ ). Based on an overall 70% capture efficiency, the fugitive emissions from the booth and oven is 133,024 lbs/yr ( $30\% \times 443,413$ ). The emissions from the booth and ovens are routed to zeolite wheel with an overall capture efficiency of 95%. Hence, the fugitive POC emission from the zeolite wheel is 15,519 lbs/yr ( $443,413 \times 0.7 \times (1-0.95)$ ). Therefore, total Tinted Clearcoat Sunset Red, Premium Clearcoat, and Glycol Ether PM emissions from the booth is 163,286 lbs/yr ( $133,024 + 14,743 + 15,519$ ) (i.e. **81.6 TPY**)

**POC Emissions from Clearcoat Oven S-4039:**

As previously discussed, 85% of POC emissions occur in the clearcoat booth and 15% in the oven. Therefore, total unabated POC emissions from oven are 78,249 lbs/yr ( $3.08 \times 12219 (1-0.85) + 3.07 \times 153415 \times (1-0.85) + 7.64 \times 1707 \times (1-0.85)$ ). Considering 70% oven capture efficiency total fugitive emissions are 23,474 lb/yr ( $78249 \times 0.3$ ). The calculations assume 95% abatement efficiency, POC emissions after abatement are 2739 lb/yr ( $78249 \times 0.7 \times (1-0.95)$ ). Therefore, total POC emissions from clearcoat oven S-4039 are 26214 lbs/yr ( $23,474 + 2739$ ) (i.e. **13.1 TPY**).

**POC Emissions from Teroson PV 1289 Sealant:**

The sealant operation comes after the E-Coat oven & dry sanding booth and before the primer, basecoat, and clearcoat booth zones. SPS will have four sealant areas with 4 (Total 16 Sealant Stations) stations for each sealant areas in all. The sealant areas will consist of LASD (Liquid-Applied Sound Deadening) Sealing, Interior Sealing, Manual Sealing, and Underbody Sealing. The fugitive emissions are emitted to the atmosphere from the sealant use and rest of the POC emissions from the sealant application are assumed to be emitted in the sealer oven S-1007, the emissions from S-1007 are abated by the Sealer thermal oxidizer A-1007. The POC emissions from the individual sealant is shown in Table 1.

Tesla will use 0.59 gallons/car for Model MS and 0.71 gallons/car for Model MX of Teroson PV 1289 sealant. The VOC content of Teroson PV 1289 sealant is 0.29 lbs/gal.

Assuming 70% oven (S-1007) capture efficiency and 95% thermal oxidizer (A-1007) destruction efficiency the POC emissions from the Teroson PV 1289 sealant operation are calculated as follows:

Production Rate 312000 cars/yr  
Total unabated POC emissions = VOC content x (Sealant Usage) x production rate  
= 0.29 lbs/gallons x (0.59+0.71) x 312000 cars/yr  
= 117,524 lbs/yr  
= 117524/365  
= 322 lbs/day

Oven capture efficiency = 70%  
Fugitive emissions from Teroson PV 1289 sealant = 322 lb/day x (1-0.7)  
= 96.6 lb/day

Thermal oxidizer destruction efficiency = 95%  
= 322 lb/day x 0.7 x (1-0.95)  
= 11.3 lb/day

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Total POC emissions from Teroson PV 1289 sealant = 96.6 lb/day + 11.3 lbs/day  
 = 107.87 lb/day  
 = (107.87 x 365)/2000  
 = **19.69 tons/yr**

**PM<sub>10</sub>/PM<sub>2.5</sub> Emissions from at Clearcoat Booth Zone (S-4038):**

Table 4 summarizes the sources and their associated abatement, and the underlying engineering basis that was used to estimate the PM<sub>10</sub>/PM<sub>2.5</sub> emissions from coating operations at primer, basecoat, and clearcoat spray booths, including fugitive emissions that are not captured or routed to A-30184, A-30185, A-30186, and A-30187 for abatement. 30% of the unabated PM<sub>10</sub>/PM<sub>2.5</sub> emissions from coating overspray associated with coating usage occur in the spray booths; 100% of the unabated PM<sub>10</sub>/PM<sub>2.5</sub> emissions from coating within the spray booths are sent to the Water Scrubber A-30184 and Filter House A-30185, A-30186, and A-30187 for abatement. Water Scrubber abates 90% and filter house abates 95% of PM<sub>10</sub>/PM<sub>2.5</sub> emissions.

<b>Table 4: PM<sub>10</sub>/PM<sub>2.5</sub> Abatement Status of South Paint Shop Coating Sources.</b>						
Source #	Source Description	PM <sub>10</sub> Abated?	PM <sub>10</sub> abated by	Transfer efficiency (%)	PM <sub>10</sub> booth capture efficiency (%)	PM <sub>10</sub> Water Scrubber/Filter House efficiency (%)
1001	E-Coat Dip Tank System	No	NA			
1002	E-coat Oven	No	NA			
4033	LASD Sealing	No	NA			
4034	Interior Sealing	No	NA			
4035	Manual Sealing	No	NA			
1005	Underbody Sealing	No	NA			
1007	Sealer Oven	No	NA			
4036	Prime Booth Zone	Yes	Water Scrubber (A-30184, Filter House A-30085)	70%	100%	90% / 95%
4037	Basecoat Booth Zone	Yes	Water Scrubber (A-30184, Filter House A-30086)	70%	100%	90% / 95%
4038	Clearcoat Booth Zone	Yes	Water Scrubber (A-30184, Filter House A-30087)	70%	100%	90% / 95%
4039	Prime & Clearcoat Oven	No	NA			
4040	Final Repair	No	NA			
4041	Purge Solvent	No	NA			

The following sample calculation provided to illustrate how the PM<sub>10</sub>/PM<sub>2.5</sub> emissions from coating operation were estimated for the clearcoat spray booth zone S-4038.

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As previously discussed, Tesla will use 12219 gallons/year of Tinted Clearcoat Sunset Red, 153415 gallons/yr of Premium Clearcoat, and 1707 gallons/yr of Glycol Ether PM to coat 312,000 cars per year. The density (lb/gal) and solid content (lb solid/lb coating) of the above coating are 8.3 and 0.37 (Tinted Clearcoat Sunset Red), 8.3 and 0.37 (Premium Clearcoat), and 7.64 and 0.0 (Glycol Ether PM).

The total unabated PM<sub>10</sub>/PM<sub>2.5</sub> emissions from S-4038 are 76.25 TPY [(12219 x 8.3 x 0.37 x (1-0.7)) + (153415 x 8.3 x 0.37 x (1-0.7)) + (1707 x 7.6 x 0 x (1-0.7))].

Unabated captured emissions (100% Capture Efficiency) are 76.25 [76.25 TPY x 100%]. Therefore, the PM<sub>10</sub>/PM<sub>2.5</sub> emissions from S-4038 after abatement are **0.38 TPY** (76.25 TPY x (1-0.9) Water Scrubber Efficiency x (1-0.95) Filter House Efficiency). The PM<sub>10</sub>/PM<sub>2.5</sub> emissions from South Paint Shop coating and sanding operation are summarized in Table 5.

<b>Table 5: South Paint Shop PM<sub>10</sub>/PM<sub>2.5</sub> Emissions from Coating Operations</b>			
Source #	Source Description	Abated PM <sub>10</sub> emissions (TPY)	Abated PM <sub>10</sub> emissions (lbs/day)
4036	Prime Booth Zone	0.15	0.84
4037	Basecoat Booth Zone	0.43	2.37
4038	Clearcoat Booth Zone	0.38	2.09
4043	E-Coat Sanding Booth	0.033	0.185
<b>Total</b>		<b>1.0</b>	<b>5.485</b>

As proposed combined PM<sub>10</sub>/PM<sub>2.5</sub> emissions from painting and combustion sources at the South Paint Shop are 3.7 TPY (2.7 TPY + 1 TPY). The combined POC emissions from painting and combustion sources at the South Paint Shop are 301.1 TPY (299.07 TPY + 1.98 TPY). The NO<sub>x</sub>, CO, and SO<sub>2</sub> emissions from South Paint Shop are 36.4 TPY, 85.1 TPY and 0.2 TPY, respectively. The Appendix contains outputs from spreadsheets documenting the detail calculations for emissions summarized in Table 1, 2, and 5.

**TOXIC HEALTH ANALYSIS (HRA):**

The HRA was required because annual emissions of formaldehyde (37.8 lbs/yr) and Naphthalene 457 lbs/yr associated with the fugitive emissions exceeded their corresponding chronic trigger levels for the above Toxic Air Contaminants (TACs) in Table 2-5-1 of Regulation 2, Rule 5.

The HRA performed by the District determined the maximum project cancer risk to be 1.6 in a million, acute hazard index to be 0.1 and the chronic hazard index to be 0.08. The HRA concluded the above risk levels are considered acceptable because the controls (thermal oxidizers) on the paint lines meet TBACT. Refer to Table 6 for TAC emissions. Appendix B contains a copy of the Air District's HRA results.

<b>Table 6: TAC Emissions from South Paint Shop Coating Operation</b>				
TAC	Hourly TAC emissions (lb/hour)	Annual TAC emissions (lb/year)	Acute Trigger level (lb/hour)	Chronic Trigger level (lb/year)
Formaldehyde	0.0043	37.8	0.12	14
Naphthalene	0.0522	457	NA	2.4

Permit conditions will limit the TAC emissions to not exceed the emission levels which the HRA was based on.

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**CUMULATIVE INCREASE:**

Table 7 summarizes the cumulative increase in emissions associated with the proposed modifications to the South Paint Shop.

Post-Project Cumulative Increase (TPY)

= Emission increases permitted at Tesla since April 5, 1991 (TPY) + Emission Increase associated with Application 30204 (TPY)

<b>Pollutant</b>	<b>Emission increases permitted at Tesla since April 5, 1991 (TPY)</b>	<b>Emission Increase associated with Application 30204 (TPY)</b>	<b>Post-Project Cumulative Increase (TPY)</b>
NO <sub>x</sub>	38.113	36.4	74.513
CO	87.101	85.1	172.201
PM <sub>10</sub> /PM <sub>2.5</sub>	22.988	3.7	26.688
POC	637.196	301.1	938.296
SO <sub>2</sub>	0.213	0.22	0.433

**BEST AVAILABLE CONTROL TECHNOLOGY (BACT):**

Per Regulation 2-2-301, BACT is only triggered when emissions from a new source or modified source has the potential to emit 10 pounds or more per highest day. Table 8 summarizes daily emissions from new/modified sources at South Paint Shop. The daily POC emissions at South Paint Shop are above 10 pounds per highest day. Therefore, BACT is triggered.



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<b>Table 8: Daily Emissions from South Paint Shop Coating Operation (pounds per day)</b>							
<b>Process Area</b>	<b>Proposed Source ID</b>	<b>Proposed Source Description</b>	<b>CO</b>	<b>NOx</b>	<b>PM<sub>10</sub>/PM<sub>2.5</sub></b>	<b>SOx</b>	<b>VOC</b>
<b>E-Coat</b>	S-1001	E-Coat Dip Tank System	0	0	0	0	0.93
	<b>E-Coat Oven 7.62 MMBtu/hr + E-Coat Sanding Air Supply House (ASU) 2.9 MMBtu/hr</b>						
	S-1002	E-Coat Oven	7,563 (5,476.7 + 2,086.4)	8,989.4 (6,506.6 + 2,482.8)	683.5 (494.7 + 188.8)	53.9 (39 + 14.9)	576.1 (358.0 + 136.6 + 81.5)
<b>Sealant</b>	<b>LASD Sealer Air Supply House 7.5 MMBtu/hr</b>						
	S-4033	LASD Sealing	5,395.7	6,421	488.2	38.5	325.3
	S-4034	Interior Sealing	0	0	0	0	0.07
	S-4035	Manual Sealing	0	0	0	0	0.07
	S-1005	Underbody Sealing	0	0	0	0	0.07
	<b>Sealer Oven 10 MMBtu/hr Heated by A-1007 Thermal Oxidizer</b>						
	S-1007	Sealer Oven	0	0	0	0	176.59
<b>Body Painting</b>	<b>Prime Booth Zone Air Supply House 5 MMBtu/hr</b>						
	S-4036	Prime Booth Zone	3,597.2	4,280.6	325.5	25.7	455 (235.5 + 219.5)
	<b>Basecoat Booth Zone Air Supply House 5 MMBtu/hr</b>						
	S-4037	Basecoat Booth Zone	3,597.2	4,280.6	325.5	25.7	818.5 (235.5 + 583.0)
	<b>Clearcoat Booth Zone Air Supply House 5 MMBtu/hr</b>						
	S-4038	Clearcoat Booth Zone	3,597.2	4,280.6	325.5	25.7	683.0 (235.5 + 447.4)
	<b>Primer Clearcoat Oven 6.19 MMBtu/hr</b>						
	S-4039	Prime & Clearcoat Oven	4,453.3	5,299.4	402.9	31.8	363.4 (291.6 + 71.8)
<b>Final Inspection</b>	S-4040	Final Repair	0	0	0	0	3.95
<b>Purge Solvents</b>	S-4041	Purge Solvents	0	0	0	0	70.7
<b>Note:</b>							
1. PM10 emissions from spray booths are abated by the Water Scrubbers and filter house. PM10 emissions from the remaining sources are not abated.							
2. POC emissions from spray booths, ovens and purge solvents are abated by the thermal oxidizer. POC emissions from the remaining sources are not abated.							
3. NOx, CO, and SO2 emissions from ovens are not abated.							
4. Daily emissions from ovens were estimated using the maximum firing rate (in MMBTU/hour) vs. annual fuel usage (Therms/year).							

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It can be seen from Table 8 that the daily emissions of POC, NO<sub>x</sub> from the ovens (except NO<sub>x</sub> emissions from sealer oven S-1007 did not increase because S-1007 is heated by a thermal oxidizer A-1007), air supply houses, LASD sealing station, and purge solvents exceed the 10 lb/day BACT trigger.

**PM<sub>10</sub>/PM<sub>2.5</sub>**

Abated PM<sub>10</sub>/PM<sub>2.5</sub> emissions from the primer (S-4036), basecoat (S-4037), clearcoat (S-4038) booth zones air supply houses and unabated PM<sub>10</sub>/PM<sub>2.5</sub> emissions from combustion process in primer clearcoat oven (S-4039), E-Coat oven (S-1002), and LASD Sealing (S-4033) air supply house are over 10 lb/day. Tesla will abate PM<sub>10</sub> emissions from the above spray booths zones with one water scrubber and three filter houses (A-30184, A-30185, A-30186, and A-30187). There is no BACT 1 for PM<sub>10</sub>/PM<sub>2.5</sub> in District's BACT Document # 161.4.2. As proposed, the use of filter house within the spray booths and water scrubbers and filter house will meet BACT 2, which requires the use of properly maintained dry filters or water-wash system.

A search in US EPA's RACT/BACT/LAER Clearinghouse<sup>1</sup> yielded the following recent BACT-PSD determinations:

- Volkswagen Group of America (Chattanooga, TN; December 3, 2012):  
Topcoat (clearcoat and basecoat) operations → abated by Eco-Dry Scrubber, which replaced downdraft water wash system → Filterable PM outlet grain loading rate: 0.0015 gr/dscf.
- Kia Motors Manufacturing (West Point, GA; July 27, 2007):  
All Paint Spray Booths, Sanding, and Repair areas → abated by paint booth dry filters and paint booth water scrubbers → Filterable PM outlet grain loading rate: 0.0015 gr/dscf.

PM<sub>10</sub> emissions in this report were not estimated using the outlet grain loading rate. Instead, PM<sub>10</sub> emissions summarized in Table 8 were estimated assuming 100% booth capture efficiency, 70% robotic spray gun transfer efficiency, and 95% booth filter efficiency. Permit conditions will subject Tesla's primer, basecoat, and topcoat spray booth zones to the BACT filterable PM outlet grain loading rate of 0.0015 gr/dscf, and will require Tesla to annually source test and verify the booth capture efficiency, robotic spray gun transfer efficiency, booth filter efficiency, and demonstrate compliance with the BACT filterable PM outlet grain loading rate.

Therefore, the test for PM<sub>10</sub> BACT is met.

**POC:**

Abated POC emissions from the primer (S-4036), basecoat (S-4037), and clearcoat (S-4038) spray booth zones, the primer (S-4036), basecoat (S-4037), clearcoat (S-4038), LASD Sealing (S-4033) air supply houses, primer and clearcoat oven S-4033, E-coat oven (S-1002), and sealer oven S-1007 are over 10 lb/day. Tesla will abate POC emissions from the above sources with thermal oxidizers (A-30180, A-30181, A-30182, A-30183, A-1007 and A-1002). POC emissions summarized in Table 8 assume 70% booth and oven capture efficiency, 95% zeolite adsorption wheel efficiency, and 95% by wt. thermal oxidizer destruction efficiency. Table 9 summarizes the VOC content of the proposed coatings (primer, basecoat, and clearcoat). The coatings are all less than their corresponding Regulation 8, Rule 13 product limits of 15 lb/gallon of applied coating solids (gacs). The overall abatement efficiency for S-1002, S-1007, S-4036, S-4037, S-4038, and S-4039 is 66.5% (0.7 x 0.95). The POC emissions from ovens does not pass through zeolite wheel but are routed directly to the thermal oxidizer A-1002, A-1007, A-30180, A-30181, A-30182, and A-30183. Therefore, BACT 1 requirements in District's BACT Document # 161.4.2 (Spray Booth Automatic Zones - Coating of Motor Vehicle Assembly Plant) are met.

A search in US EPA's RACT/BACT/LAER Clearinghouse yielded the following recent BACT-PSD determinations:

- Toyota Motor Manufacturing Plant in Kentucky (KY-0102), dated (July 6, 2016):

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<sup>1</sup> Process code: 41.002

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Primer Oven and Topcoat Oven → abated by thermal oxidizer → Overall control efficiency of 60% by wt.  
→ VOC limit of 3.54 lb/vehicle as a 3 hr average for topcoat.

- Volkswagen Group of America Plant in, Chattanooga, Tennessee (TN-0161) (December 3, 2012):  
Topcoat (clearcoat and basecoat) application and curing oven → abated by thermal oxidizer → 95% by wt. destruction efficiency → combined topcoat VOC limit of 5.2 lb/gacs.
- Subaru of Indiana (IN-0195) (May 19, 2014):  
Topcoat coating line abated by Thermal oxidizer → 95% by wt. destruction efficiency and 18% capture efficiency → VOC limit of 10.96 lb/gallon;
- Ford Motor Company in Kentucky (KY-0101) (February 26, 2014):  
Topcoat (clearcoat and basecoat) application and curing oven → spray booth abated by carbon adsorption followed by RTO and curing oven abated by RTO → 95% by wt. destruction efficiency → VOC limit for clearcoat of 11.3 lb/gacs and VOC limit for basecoat of 11.69 lb/gacs.

Though not listed on the RBLIC, the Toyota plant in Blue Springs, MS (August 1, 2013) is subject to a combined VOC limit for primers and topcoats (basecoat and clearcoat) of 4.8 lb/gacs averaged on a monthly basis. Unlike other facilities, the Volkswagen plant in Chattanooga, TN does not have a separate guidecoat operation. Instead, the primer is included in the E-coat. Therefore, the Volkswagen VOC limit of 5.2 lb/gacs listed on the RBLIC is not as stringent as the Toyota VOC limit. Therefore, Tesla will be subjected to the 4.8 lb/gacs VOC limit.

As proposed and per information summarized in Table 9, the average VOC content of basecoats and clearcoats that will be used at Tesla are 4.13 lb/gallon (4.76 lb/gacs) and 3.08 lb/gallon (2.7 lb/gacs), respectively. Permit conditions will require Tesla to annually source test and verify the booth and oven capture efficiency and the destruction efficiency of the thermal oxidizers to demonstrate compliance with the annual and monthly POC mass emissions limits. The permit conditions will also require Tesla to use the results from the source tests to demonstrate compliance with the combined BACT VOC limit of 4.8 lb/gacs averaged on a monthly basis through emission calculations and recordkeeping.

Therefore, the test for POC BACT is met.

**NOx:**

NOx emissions from the primer (S-4036), basecoat (S-4037), clearcoat (S-4038) booth zones air supply houses, and from primer clearcoat oven (S-4039), E-Coat oven (S-1002), and LASD Sealing (S-4033) air supply house are over 10 lb/day and trigger BACT. Tesla has not proposed to abate NOx emissions from the ovens citing technical infeasibility. There are no BACT determinations for NOx in District's BACT Document # 161.4.3 and 161.4.4, nor are there any RBLIC determinations for NOx for ovens in similar service. However, natural gas fired ovens equipped with low-NOx burners at the Volkswagen plant in Chattanooga, TN are subject to a NOx emission rate of 0.05 lb/MMBTU. The burners at Volkswagen use fresh air (lean burn environment), whereas the Tesla burners will utilize recirculated air and also operate at a higher temperature (rich burn environment). Hence, the burners at Tesla will use less natural gas compared to their counterparts at Volkswagen, and would therefore, emit lower mass emissions as a result. Because the stoichiometric air to fuel ratios for the burners at Volkswagen and Tesla are different, Tesla's vendor cannot guarantee that the NOx emission rate of 0.05 lb/MMBTU can be met. For reasons stated above, burners at Tesla will be subject to an AP-42 NOx emission factor of 0.098 lb/MMBTU. NOx emissions summarized in Table 8 were estimated for the above ovens assuming an emission rate of 0.098 lb/MMBTU, and that the ovens will be equipped with low-NOx burners.

Permit conditions will require Tesla to annually source test the ovens to demonstrate compliance with the annual and monthly NOx mass emissions limits and will require Tesla to employ good combustion practices. Tesla will also be required by the permit conditions to verify compliance with the NOx emission rates of 0.098 lb/MMBTU via annual source tests.

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Therefore, the test for NO<sub>x</sub> BACT is met.

**CO:**

Unabated CO emissions from the primer (S-4036), basecoat (S-4037), clearcoat (S-4038) booth zones air supply houses, and from primer clearcoat oven (S-4039), E-Coat oven (S-1002), and LASD Sealing (S-4033) air supply house are over 10 lb/day. Tesla has not proposed to abate CO emissions from the ovens citing technical infeasibility. There are no BACT determinations for CO in District's BACT Document # 161.4.3 and 161.4.4, nor are there any RBLC determinations for CO for ovens in similar service. CO emissions summarized in Table 8 were estimated assuming the manufacturer's guaranteed emission rate of 0.08 lb/MMBTU.

Permit conditions will require Tesla to annually source test the ovens to demonstrate compliance with the annual and monthly CO mass emissions limits and will require Tesla to employ good combustion practices. Compliance with the CO emission rate of 0.08 lb/MMBTU will be verified via the annual source tests required by the permit conditions.

Therefore, the test for CO BACT is met.

Attachment D contains a copy of the RBLC results.

**OFFSETS:**

Per Regulation 2-2-302, offsets must be provided for any new or modified source at a facility that emits or will be permitted to emit more than 10 tons/year of POC or NO<sub>x</sub>. The proposed project will result in 301.1 TPY of POC and 36.4 TPY of NO<sub>x</sub> emissions increase. Because Tesla's PTE for POC and NO<sub>x</sub> is greater than 35 TPY, offsets are required per Regulation 2-2-302, at a ratio of 1.15:1 for any un-offset cumulative increase at the facility. Tesla provided Banking Certificate of Deposit #1738 for POC with 584,583 tons of POC offsets. After deducting 346,265 tons (301.1 tons/yr x 1.15 = 346.265 tons/yr) of POC offset Tesla will have 238,318 tons of offset remaining. Tesla agreed to provide 41.86 tons (36.4 tons/yr x 1.15 = 41.86) of NO<sub>x</sub> offsets before the Authority to Construct is issued. Tesla provided the proof of NO<sub>x</sub> offset purchase (42.5 tons of NO<sub>x</sub>). Refer to Table 7 for POC and NO<sub>x</sub> emissions.

Tesla is a "major" facility for POC only. Tesla is not a major facility for SO<sub>2</sub> or PM<sub>10</sub>. It can be seen from Table 7 that the proposed modifications to the South Paint Shop will result in a PM<sub>10</sub> and SO<sub>2</sub> emissions increase of 3.7 TPY and 0.22 TPY, respectively. The increase in PM<sub>10</sub> and SO<sub>2</sub> emissions do not have to be offset by Tesla per Regulation 2-2-303 and will instead be offset from the District's Small Facility Bank.

PSD and NSPS do not apply.

**STATEMENT OF COMPLIANCE:**

Sources summarized in Table 1 are subject to and are expected to comply with Regulation 8, Rule 13 "Organic Compounds: Light and Medium Duty Motor Vehicle Assembly Plants", 40 CFR 60, Subpart MM "Standards of Performance for Automobile and Light Duty Truck Surface Coating Operations", and 40 CFR 63, Subpart III "National Emission Standards for Hazardous Air Pollutants: Surface Coating of Automobiles and Light-Duty Trucks". Table 9 shows that the proposed coatings (the basecoats, clearcoats, primers, sealants, and E-coats) are expected to comply with the product limits for the coatings in each of the rules. The Districts Compliance and Enforcement staff will verify Tesla's compliance with the above rules during their routine inspections. Also, permit conditions will require Tesla to comply with BACT by ensuring the VOC emissions from the combined primer, basecoat, and clearcoat operations does not exceed 4.8 lbs/gacs as averaged on a monthly basis.

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**Table 9:  
South Paint Shop Coatings Compliance with Applicable Emission Limits/Standards**

Paint	VOC Content	HAP Content	Regulation 8-13-302		NSPS MM 40 CFR 60.392		MACT III 40 CFR 63.3090 (b) & (c)	
	lb/gacs <sup>2</sup>	lb/gacs	VOC lbs/gacs	Complies with rule? (Yes/No)	VOC lbs/gacs	Complies with rule? (Y/N)	EDP <sup>3</sup> DE > 95%: HAP lbs/gacs	Complies with rule? (Y/N)
Titanium Prime	3.5	0.062	15.0	Y	11.68	Y	0.5	Y
Groundcoat-Shasta White Basecoat	3.6	0.062	15.0	Y	11.68	Y	0.5	Y
Steel Gray Basecoat	5.2	0.120	15.0	Y	11.68	Y	0.5	Y
Ocean Blue Basecoat	4.9	0.118	15.0	Y	11.68	Y	0.5	Y
Black Diamond Basecoat	4.6	0.110	15.0	Y	11.68	Y	0.5	Y
Sunset Red Basecoat	5.2	0.149	15.0	Y	11.68	Y	0.5	Y
Midcoat-Shasta White Basecoat	5.0	0.146	15.0	Y	11.68	Y	0.5	Y
Tinted Clearcoat Sunset Red	2.7	0.063	15.0	Y	11.68	Y	0.5	Y
Premium Clearcoat	2.7	0.063	15.0	Y	12.27	Y	0.5	Y
Glycol Ether PM	--	--	15.0	Y	12.27	Y	0.5	Y
Hi Sol 15	--	--	15.0	Y	12.27	Y	0.5	Y
Titanium Prime	3.8	0.081	15.0	Y	11.68	Y	0.5	Y
Ecoat Paste	0.03	--	Must meet 90% destruction efficiency (DE)	Y, Will achieve 95% DE	1.42	Y		Must meet 90% destruction efficiency (DE)
Ecoat Resin	0.19							

Sources summarized in Table 1 are subject to and are expected to comply with Sections 301 (Ringelmann No. 1 Limitation), 302 (20% opacity limit), 305 (Visible Particles), 310 (outlet grain loading rate limit of 0.15 gr/dscf) and 311 (Allowable Emission Rate based on Process Weight Rate) in Regulation 6, Rule 1 “Particulate Matter – General Requirements”. The District’s Compliance and Enforcement staff will verify Tesla’s compliance with applicable requirements in Regulation 6-1 during their routine inspections.

The 3 ovens and 3 air supply houses in the South Paint Shop are exempt from Regulation 9, Rule 7 “Inorganic Gaseous Pollutants – Nitrogen Oxides and Carbon Monoxide from Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters” per Section 110.6, which states: “The requirements of this rule shall not apply to the following: Kilns, ovens, and furnaces used for drying, baking, heat treating, cooking, calcining or vitrifying”.

<sup>2</sup> gacs - gallon of applied coating solids

<sup>3</sup> Per 40 CFR 63.3092, the limit applies only if emissions from all bake ovens used to cure electrodeposition primers (EDP) are captured and ducted to a control device having a destruction efficiency (DE) or removal efficiency of at least 95%.

<sup>5</sup> Per 40 CFR 63.3090 (b) the limit applies to the combined organic HAP emissions to the atmosphere from all the coatings. The total combined HAPs emissions from basecoat, primer, and clearcoat are 0.1 lbs/gacs. Therefore, combined HAP emissions from all the coatings will meet 0.5 lbs/gacs limits.

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**PSD:**

The Prevention of Significant Deterioration is a federal air permitting program designed to limit the impacts of new major sources or major modifications at existing sources located in areas designated as attainment or unclassifiable for regulated air pollutants. Regulation 2-2-224 incorporates the PSD program requirements. A facility is a major source under the PSD program if it has emissions of any “regulated NSR pollutant” over the applicable major source threshold. Because existing permitted VOC emissions at Tesla are greater than 250 TPY, Tesla is a major source under the PSD program. VOC’s are not regulated by the District in Regulation 2-2-224 since it is a precursor to ozone and the District is designated as a nonattainment area for the above pollutant. Similarly, the District is designated as a nonattainment area for the 24-hour PM<sub>2.5</sub> standards and PSD thresholds don’t exist in Regulation 2-2-224 for PM<sub>2.5</sub>.

The proposed modifications to the South Paint Shop would trigger the PSD requirements in Regulation 2-2-224 if the cumulative increase in emissions of NO<sub>x</sub>, SO<sub>2</sub>, PM<sub>10</sub>, CO, and lead from the PSD baseline at the facility exceed PSD trigger levels summarized in Table 10. Permit conditions will prevent Tesla from using coatings that contain lead, or lead compounds. Therefore, the proposed modifications to the South Paint Shop will not result in any lead emissions.

Pollutant	Emissions Associated with Project (TPY)	PSD Trigger Levels (TPY)
NO <sub>x</sub>	36.4	40
CO	85.1	100
PM <sub>10</sub> /PM <sub>2.5</sub>	3.7	15
POC	301.1	40
SO <sub>2</sub>	0.22	40

It can be seen from Table 10 that the net project emissions increases associated with the proposed modifications to the South Paint Shop are below their corresponding PSD trigger levels. Therefore, a PSD is not triggered.

**Green House Gas:**

Table 11 summarizes Greenhouse Gas (GHG) emission factors and the associated GHG emissions from the four ovens and one thermal oxidizer that are part of the project.

GHG Pollutant	GHG emission factor (kg/MMBTU)	GHG emissions <sup>4</sup> (tons/year)
CO <sub>2</sub>	53.060	39,025
CH <sub>4</sub>	0.001	0.74
N <sub>2</sub> O	0.0001	0.07

GHG emissions are regulated under the PSD program as carbon dioxide equivalent emissions (CO<sub>2</sub>e). The U.S. Environmental Protection Agency (EPA) adopted the Tailoring Rule with a GHG major source threshold of 100,000 tons/year CO<sub>2</sub>e and a PSD significant emission level of 75,000 tons/year CO<sub>2</sub>e. On June 23, 2014, the U.S. Supreme Court ruled on a case involving the Tailoring Rule and found that EPA had over-stepped its authority in adopting the 100,000 tons/year CO<sub>2</sub>e major source threshold. However, the Court upheld EPA’s ability to regulate GHG emissions from a source that triggers PSD for another non-GHG pollutant. It can be seen from Table 11 that the

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<sup>4</sup> The CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O GHG Emissions are calculated in the South Paint Shop excel spreadsheet.

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proposed project does not trigger PSD for any non-GHG pollutants. Therefore, PSD (if applicable) would not be required for GHGs under the U.S. Supreme Court ruling.

**Regulation 2-2-404:**

Requirements for publication and public comment of preliminary permit decisions are specified in District Regulation 2-2-404. Regulation 2-2-404 apply because: (1) The proposed modifications to the SPS is a “major modification” of a major facility as defined in Regulation 2-2-218, and (2) The modification of existing South Paint Shop will involve an increase in VOC in an amount that is significant as defined in Section 2-2-227.2. Therefore, the new SPS coating line triggers the “Publication and Public Comment” requirements in Regulation 2-2-404 as a result.

**California Environmental Quality Act (CEQA):**

The City of Fremont is the CEQA Lead Agency for the project and has determined that the proposed project is ministerially exempt from CEQA pursuant to CEQA Guidelines Section 15268 (Ministerial Projects) given that the Paint Line Modification would occur within an existing building previously approved for vehicle painting in May 1996 and amended on July 22, 2014.

The City of Fremont approved a Zoning Administrator Permit Amendment in May 1996 to allow construction of an approximately 430,000-square-foot vehicle paint building. In addition, the City of Fremont adopted an Addendum to EIR-89-13 in compliance with CEQA, which identified no potentially significant environmental impacts with the proposed project.

As no discretionary approval is required for the South Paint Shop Modification project, the City of Fremont will be issuing a building permit to Tesla, which qualifies for a Ministerial Exemption.

The Air District has determined that the issuance of an Authority to Construct in Permit Application No. 30204 is also exempt from CEQA because the permitting of the project does not authorize expansion of the existing use of the South Paint Shop. (CEQA § 21084; Guidelines § 15301) and Air District Regulation 2-1-312.7. In addition, Tesla has submitted in its permit application CEQA-related information (CEQA Appendix H “Environmental Information Form”) in accordance with Regulation 2-1-312.

Appendix I in the application folder contains a copy of an Appendix H that Tesla submitted to the Air District in its permit application.

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**Permit Conditions**

The following permit conditions will govern the Tesla South Paint Shop coating operations. In order to allow Tesla maximum operational flexibility, the permit condition is limiting individual coating to its highest annual throughput requested by Tesla. Tesla is using six-Thermal Oxidizers, one Water Scrubber and three Filter Houses to control emissions from South Paint Shop coating operations.

For the purpose of determining compliance with emissions and/or throughput limits, a year is defined as a twelve-month consecutive period; a month is defined as a calendar month.

The purpose of defining limits for calendar month and model year, is to allow Tesla operational flexibility in the event of increased production following a plant shutdown. Each model year, Tesla must make a set number of vehicles to meet consumer demands. At certain times during the calendar year, they could stop production for a variety of reasons including but not limited to model changes, holidays, equipment failure, or natural disasters. The consequent loss of production volume must be overcome by increasing the production rate in subsequent month(s).

Tesla has requested that their monthly limits be flexible to properly accommodate production down-time and increased production. Tesla defines a year as the time it takes them to produce a vehicle model in a consecutive twelve-month period. Monthly limits, derived by dividing the annual limits by 8 months instead of 12 months, will result in monthly limits that will accommodate sporadic production increases. For example, if Tesla were to shut down the plant for one month due to a model change or any other reason, there would be essentially no coating usage or emissions. Tesla could easily exceed an average monthly limit (derived by dividing the annual limits by 12 months) during the month(s) following a shut down when Tesla increases production hours to make-up for the lack of production. By allowing Tesla a monthly limit derived by dividing the annual limit by 8 months, the temporary production rate increase would then be less likely to exceed the derived monthly limit(s), without exceeding the annual limits.

At least 30 days before start-up, Tesla shall notify the Air District of any changes that were not originally applied for in the permit application (Application #30204), such as new sources or abatement equipment, make and/or model changes, throughput changes, coating VOC content changes, exhaust flow rate changes, substitution of solvent based coatings for water-based coatings. Tesla shall submit a permit application to the Air District for any changes that the Air District determines to be modifications to the permit and shall not operate such sources until it receives the Air District's formal approval in writing.

**Permit Condition # 27161:**

For the purposes of these conditions, the following terms have the following meanings:

“**emergency**” shall mean a situation that poses an immediate risk to health, life, property, or the environment.

“**MMBtu**” shall mean million British thermal units.

“**month**” shall mean calendar month.

“**POC**” shall mean as defined in Air District Regulation 1.

“**NPOC**” shall mean as defined in Air District Regulation 1.

“**startup**” shall mean lesser of the first 30 minutes of continuous fuel flow to the oven or thermal oxidizer after fuel flow is initiated.

“**therm**” shall mean 100,000 British thermal units.

“**VOC**” shall mean as defined in Air District Regulation 1.

“**VOC content**” shall mean as defined in Air District Regulation 8, Rule 13

“**warm-up**” means once the burner pilot is ignited, the main flame can be brought online to ramp up burner temperature to operating temperature. The warm-up and startup shall occur simultaneously within first 30 minutes.

“**year**” shall mean any consecutive twelve-month period.

**South Paint Shop Annual Throughput Limits:**

1. The owner/operator of the South Paint Shop sources (S-1002, S-4036, S-4037, S-4038, S-4039, S-4040, S-4041, S-4042) shall not exceed the following combined material usage limits during any consecutive twelve-month period:



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<b>Coating Material</b>	<b>Annual Throughput in Gallons</b>
Titanium Primer	56,834
Ground-Coat-Shasta White Basecoat	25,494
Steel Gray Basecoat	35,012
Ocean Blue Basecoat	25,172
Black Diamond Basecoat	22,550
Sunset Red Basecoat	22,106
Mid-coat-Shasta White Basecoat	9,455
Tinted Clearcoat Sunset Red	12,219
Premium Clearcoat	153,415
Glycol Ether PM	1,707
Hi-Sol 15	1,636

<b>Sealants</b>	<b>Annual Throughput in Gallons</b>
Teroson PV 1289	405,600
PPG P8370	293,280

<b>E-Coat Material</b>	<b>Annual Throughput in Gallons</b>
E-Coat Resin	398,685
E-Coat Paste	36,383

<b>Final Repair Material</b>	<b>Annual Throughput in Gallons</b>
R-M DP 200 (Primer)	20
Titanium 3-Wet (Primer)	20
Ocean Blue (Basecoat)	20
Ground-coat-Shasta White (Basecoat)	14
Mid-Coat-Shasta White (Basecoat)	6
Steel Grey (Basecoat)	20
Black Diamond (Basecoat)	20
Sunset Red (Basecoat)	20
R-M DC21NB (Clearcoat)	6.5
Premium (Clearcoat)	26
Tinted Sunset Red (Clearcoat)	4
Hardener	11.5
Reducer	19
Blending Agent	19

<b>Purge Solvent</b>	<b>Annual Throughput in Gallons</b>
Gage 31330	27,273
Henkel Bonderite	27,273
(Basis: Cumulative Increase)	

**South Paint Shop POC and NPOC Emissions:**

2. The owner/operator of the South Paint Shop sources (S-1001, S-1002, S-1005, 1007, S-4033, S-4034, S-4035, S-4036, S-4037, S-4038, S-4039, S-4040, S-4041, and S-4042) may use alternate coating(s), sealant(s), purge solvent(s), and final repair material(s), other than the materials specified in Part 1 or materials in excess of those specified in Part 1 provided that the owner/operator can demonstrate that all of the following are satisfied:

- a. Total POC and NPOC emissions from Coating Operations, Sealants, E-Coat Dip Tanks, Purge Solvents, and Final repair do not exceed the following limits:

<b>POC Emissions</b>	<b>NPOC Emissions</b>
581,740 lbs/year, (290.870 tons)	8,111 lbs/year
72,725 lbs/month, (36.362 tons)	1,014 lbs/month

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- b. Materials used do not contain methylene chloride (MeCl), chromium (Cr), lead (Pb), manganese (Mn), nickel (Ni), or cadmium (Cd).
  - c. The use of alternate materials does not increase toxic emissions above any risk screen trigger levels in Table 2-5-1 of Regulation 2-5, except for formaldehyde and naphthalene emissions which shall not exceed 37.8 lbs/year and 457.0 lbs/year, respectively.
  - d. Demonstration that any toxic air contaminants in new solvents in Part 2.c., do not exceed the acute and chronic trigger levels by calculating toxic air contaminant emissions on a pound per hour and pound per year basis, respectively.
- (Basis: Plant Cumulative Increase, Regulation 2-1-320, BACT/TBACT)

- 3. The owner/operator shall capture and store the waste coatings and VOC containing materials in closed containers and disposed of in an acceptable manner in compliance with all applicable Air District and federal regulations.  
(Basis: Regulation 2-1-403)
- 4. The owner/operator shall comply with all applicable provisions of the federal Standards of Performance for New Stationary Sources as specified in 40 CFR Part 60, Subparts A and MM, and 40 CFR 63, Subpart IIII.  
(Basis: Regulation 2-1-403)
- 5. The owner/operator shall determine the VOC content of any coating or material as applied and as received using Air District approved test methods and/or federal Reference Test Method 24. The VOC content of any coating may alternatively be determined from manufacturer's formulation data.  
(Basis: Regulation 2-1-403)
- 6. The owner/operator shall report any equipment break down, fires, or accidents in South Paint Shop to the Division Director of the Air District's Engineering Division and the Compliance & Enforcement Division and the Air District's Permit Engineer within 24-hours of occurrence.  
(Basis: Regulation 2-1-403)
- 7. The owner/operator of A-30185, A-30186, and A-30187 shall store the used filters in a closed container with proper labelling. The label should include the date and time the filters were stored and the initial of the responsible person.  
(Basis: Regulation 2-1-403)

**South Paint Shop Combustion Emissions:**

- 8. The owner/operator shall only use PUC quality natural gas at S-1002, S-4033, S-4036, S-4037, S-4038, S-4039 A-1002, A-1007, A-30180, A-30181, A-30182, and A-30183 and ensure that the combined usage does not exceed the 7,375,920 therms during any consecutive 12-month period. When determining compliance with this limit, a higher heating value for natural gas of 1,020 British thermal units per standard cubic foot shall be used.  
(Basis: Cumulative Increase)
- 9. The owner/operator shall not exceed the following nitrogen oxide (NOx) and carbon monoxide (CO) emission limits from the following sources except during the startup and burner warm-up operations:

Source	lbs of NOx/MMBTU	lbs of CO/MMBTU
S-1002	0.098	0.08
S-4033	0.098	0.08
S-4036	0.098	0.08
S-4037	0.098	0.08
S-4038	0.098	0.08
S-4039	0.098	0.08

  
(Basis: Cumulative Increase)

- 10. The owner/operator shall not exceed the following nitrogen oxide (NOx) and carbon monoxide (CO) emission limits from the following abatement devices except during the startup and burner warm-up operations:

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Abatement Device	lbs of NOx/MMBTU	lbs of CO/MMBTU
A-1002	0.10	0.8
A-1007	0.10	0.8
A-30180	0.10	0.017
A-30181	0.10	0.005
A-30182	0.10	0.006
A-30183	0.10	0.005

(Basis: Cumulative Increase)

11. The owner/operator shall ensure that each startup and burner warm-up operation of S-1002, S-4033, S-4036, S-4037, S-4038, and S-4039 shall not exceed more than 30 minutes.  
(Basis: Cumulative Increase)

**Conditions for Solvent Laden Fan (SLA Fan A-30191):**

12. The owner/operator shall balance the fresh air entering the booths, exhaust air recirculating in the booths, and exhaust air through A-30191 in order to maintain a negative pressure in the booth during all the times of operation.  
(Basis: Regulation 2-1-403)
13. The owner/operator shall properly install, properly maintain, and properly operate A-30191 as per the manufacturer's specification.  
(Basis: Regulation 2-1-403).

**Conditions for Concentrator Wheels (A-30188, A-30189, and A-30190):**

14. The owner/operator shall properly install, properly maintain, and properly operate the Concentrator Wheels A-30188, A-30189, and A-30190 as per the manufacturer's specification.  
(Basis: Regulation 2-1-403)

**Condition for Thermal Oxidizer A-1002, A-1007, A-30180, A-30181, A-30182, and A-30183:**

15. The owner/operator of A-1002, A-1007, A-30180, A-30181, A-30182, and A-30183 shall ensure that the POC/NPOC emissions from S-1002, S-1007, S-4036, S-4037, S-4038, S-4039, and S-4041 are abated at all times of operation by the properly installed, properly operated, and properly maintained Thermal Oxidizers A-1002, A-1007, A-30180, A-30181, A-30182, and A-30183, respectively.  
(Basis: Cumulative Increase, Regulation 2-1-403)
16. The owner/operator shall ensure that A-1002, A-1007, A-30180, A-30181, A-30182, and A-30183 are operating and abating emissions from S-1002, S-1007, S-4036, S-4037, S-4038, S-4039, and S-4041 during any clean-up operations that may occur following production activities.  
(Basis: BACT/TBACT, Cumulative Increase)
17. The owner/operator of A-1002, A-1007, A-30180, A-30181, A-30182, and A-30183 shall ensure that the capture efficiency at each booth and oven to their respective thermal oxidizer meet a minimum capture efficiency of at least 70% .  
(Basis: Cumulative Increase; BACT/TBACT)
18. The owner/operator shall operate A-1002, A-1007, A-30180, A-30181, A-30182, and A-30183 to each meet the following VOC destruction efficiency requirements:
- a. Outlet VOC concentration of 10 ppmv or less; or
  - b. All of the following standards depending on the inlet VOC concentration:
    - i. VOC destruction efficiency  $\geq$  98.5% if inlet VOC concentration  $>$  2,000 ppmv;
    - ii. VOC destruction efficiency  $>$  97% if inlet VOC concentration  $>$  200 to  $<$  2,000 ppmv;
    - iii. VOC destruction efficiency  $>$  90% if inlet VOC concentration  $<$  200 ppmv.
- (Basis: Cumulative Increase)

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19. The owner/operator shall operate A-1002, A-1007, A-30180, A-30181, A-30182, and A-30183 at a minimum operating temperature of 1400 degrees F. The Air District may adjust this minimum temperature, if source test data demonstrate that an alternate temperature is capable of maintaining compliance with Part 18 above.  
(Basis: Cumulative Increase)
20. The owner/operator shall equip each A-1002, A-1007, A-30180, A-30181, A-30182, and A-30183 with a temperature measuring device capable of continuously measuring and recording the temperature to determine compliance with the temperature requirement in Part 19 of this permit condition. The owner/operator shall install, and maintain a temperature measuring device in accordance with manufacturer's recommendations that meets the following criteria: the minimum and maximum measurable temperatures with the device are 200 degrees F and 1900 degrees F, respectively, and the minimum accuracy of the device over this temperature range shall be 1.0 percent of full-scale.  
(Basis: Cumulative Increase)
21. The owner/operator of A-1002, A-1007, A-30180, A-30181, A-30182, and A-30183 shall report any non-compliance with Parts 2a, 18 and 19 of this condition to the Director of the Compliance & Enforcement Division and the Air District Permit Engineer at the time that it is discovered. The submittal shall detail the corrective action taken and shall include the data showing the exceedance as well as the time of occurrence.  
(Basis: Cumulative Increase, Regulation 2-5)
22. The temperature limit in Part 19 shall not apply during an "Allowable Temperature Excursion", provided that the temperature controller set-point complies with the temperature limit. An Allowable Temperature Excursion is one of the following:
- a. A temperature excursion not exceeding 20 degrees F; or
  - b. A temperature excursion for a period or periods which when combined are less than or equal to 15 minutes in any hour; or
  - c. A temperature excursion for a period or periods which when combined are more than 15 minutes in any hour, provided that all three of the following criteria are met.
    - i. the excursion does not exceed 50 degrees F;
    - ii. the duration of the excursion does not exceed 24 hours; and
    - iii. the total number of such excursions does not exceed 12 per calendar year (or any consecutive 12-month period).
- Two or more excursions greater than 15 minutes in duration occurring during the same 24-hour period shall be counted as one excursion toward the 12-excursion limit.  
A summary of these records shall be included in the owner/operator's monthly report to the APCO. To satisfy the NSPS requirement of 40 CFR 60, Subpart MM, a negative declaration is also required in the owner/operator's monthly report if there are no temperature excursions.  
(Basis: Cumulative Increase, Regulation 2-1-403)
23. For each Allowable Temperature Excursion, as defined in Part 22, that exceeds 20 degrees F and 15 minutes in duration, the owner/operator shall keep sufficient records to demonstrate that they meet the qualifying criteria described above. Records shall be retained for a minimum of five years from the date of entry and shall be made available to the Air District upon request. Records shall include at least the following information:
- a. Temperature controller set-point;
  - b. Starting date and time, and duration of each Allowable Temperature Excursion;
  - c. Measured temperature during each Allowable Temperature Excursion;
  - d. Number of Allowable Temperature Excursions per month, and total number for the current calendar year; and
  - e. All strip charts or other temperature records.
- (Basis: Cumulative Increase; Regulation 2-1-403)

**Conditions for Wet Scrubber (A-30184) and Filter House (A-30185, A-30186, & A-30187):**

24. The owner/operator shall ensure PM<sub>10</sub>/PM<sub>2.5</sub> emissions from primer booth (S-4036), basecoat booth (S-4037), and clearcoat booth (S-4038) are abated at all the times of operation by the properly installed, properly operated, and properly maintained A-30185, A-30186, and A-30187, respectively, with 95% abatement

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efficiency when any one and/or all of the above spray booths are in operation.  
(Basis: BACT)

25. The owner/operator shall ensure that the PM<sub>10</sub>/PM<sub>2.5</sub> emissions from S4036, S-4037, and S-4038 are abated at all the times of operation by the properly installed, properly operated, and properly maintained Wet Scrubber (A-30184) with 90% abatement efficiency.  
(Basis: Cumulative Increase, Regulation 2-1-403)
26. The owner/operator of A-30185, A-30186, and A-30187 shall equip each filter house with a device for measuring the pressure drop across the filter house on a continuous basis. The owner/operator shall inspect the filter house on a daily basis to ensure proper operation. The initial pressure drop shall be 0.17 inches of water (gauge) to a maximum 1.5 inches of water. The Air District may adjust this above pressure drop if source test data demonstrate that an alternate pressure drop is necessary for maintaining compliance.  
(Basis: Regulation 2-1-403, 6-1-301, 6-1-310, 6-1-311)
27. The owner/operator of A-30185, A-30186, and A-30187 shall ensure that the outlet grain loading rate of PM<sub>10</sub> (filterable + condensable) emissions exhausting out of the concentrator wheel through the desorb and clean air exhaust combined is at/below 0.0015 grains per dry standard cubic foot. To determine the grain loading from the filter house the owner/operator shall provide the source testing ports and platform(s) at the filter houses that are necessary to conduct EPA Method 201a and Method 202 source tests or equivalent source test methods as determined and approved by the Air District's Source Test Section.  
(Basis: BACT, Regulation 2-1-403)

**Conditions for Emergency Bypass system, Solvent Laden Fan, and Concentrator Wheel:**

**Emergency Bypass System:**

28. The owner/operator shall install Continuous Emission Monitoring System (CEMS) on each bypass system to determine the total POC emissions during each bypass event. The annual POC emissions from all the bypasses shall be totaled and added to the South Paint Shop POC emissions. The total POC emissions from South Paint Shop including all bypasses shall not exceed 301.1 tons/year.  
(Basis: Cumulative Increase, 40 CFR, Part 63, Subpart IIII)
29. The owner/operator shall monitor or secure the valve or closure mechanism controlling the bypass lines in a non-diverting position in such a way that the valve or closure mechanism cannot be opened without creating a record that the valve was opened. The method used to monitor or secure the valve or closure mechanism must meet one of the requirements specified in paragraphs (b)(1)(i) through (iv) of this section 40 CFR 63.3168(b).  
(Basis: Cumulative Increase, 40 CFR, Part 63, Subpart IIII)
30. The owner/operator shall install, calibrate, maintain, and operate the flow control position indicator according to the manufacturer's specifications. The flow control position indicator shall take a reading at least once every 15 minutes and provide a record indicating whether emissions are directed to the add-on control device or diverted from the add-on control device to the atmosphere. The time of occurrence and flow control position must be recorded, as well as every time the flow direction is changed. The flow control position indicator must be installed at the entrance to any bypass line that could divert the emissions away from the add-on control device to the atmosphere.  
(Basis: Cumulative Increase, 40 CFR, Part 63, Subpart IIII)
31. The owner/operator shall secure any bypass line valve in the closed position with a car-seal or a lock-and-key type configuration. The owner/operator must visually inspect the seal or closure mechanism at least once every month to ensure that the valve is maintained in the closed position, and the emissions are not diverted away from the add-on control device to the atmosphere.  
(Basis: Cumulative Increase, 40 CFR, Part 63, Subpart IIII)
32. The owner/operator shall inspect the bypass monitoring system at least once every month to verify that the monitor will indicate valve position.

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(Basis: Cumulative Increase, 40 CFR, Part 63, Subpart IIII)

33. The owner/operator shall use an automatic shutdown system in which the coating operation is stopped when flow is diverted by the bypass line away from the add-on control device to the atmosphere when the coating operation is running. The owner/operator shall inspect the automatic shutdown system at least once every month to verify that it will detect diversions of flow and shut down the coating operation.

(Basis: Cumulative Increase, 40 CFR, Part 63, Subpart IIII)

34. The owner/operator shall use bypass system only in case of emergency. If any bypass line is opened, the owner/operator shall include a description of why the bypass line was opened and the length of time it remained open in the monthly compliance reports.

(Basis: Cumulative Increase, 40 CFR, Part 63, Subpart IIII)

**Source Test Requirements for Ovens, Air Supply Houses, and Thermal Oxidizers:**

35. The owner/operator shall provide stack sampling port(s) and platform(s), as needed for source testing purposes at the following locations:

- a. Booth(s) and oven(s) exhaust stack(s),
- b. Inlet to the Concentrator Wheels A-30188, A-30189, and A-30190 and each outlet of the clean air exhaust,
- c. Concentrated air exhaust duct after the Concentrator Wheels A-30188, A-30189, and A-30190,
- d. Inlet and outlet of the Thermal Oxidizers (A-1002, A-1007, A-30180, A-30181, A-30182, and A-30183)
- e. the Wet Scrubber and Filter Houses (A-30184, A-30185, A-30186, and A-30187)

(Basis: Cumulative Increase)

36. The owner/operator of A-1002, A-1007, A-30180, A-30181, A-30182, and A-30183 shall determine the overall efficiency of the emission control system that are part of this permit condition as follows:

- (i) Capture efficiency shall be determined as specified in 40 CFR 51, Appendix M, Test Methods 204 – 204F, as applicable.
- (ii) Control device destruction efficiency shall be determined as specified in the BAAQMD Manual of Procedures, Volume IV, ST-7 or EPA Method 25 or 25A.
- (iii) For the determination of control device destruction efficiency, any non-precursor organic compound defined in Regulation 1-234 including acetone shall be included as a volatile organic compound.
- (iv) The overall efficiency of the emission control system, expressed as a percentage, shall be calculated according to the following equation:

$$OE = [CE \times DE]/100$$

Where:

OE = Overall efficiency

CE = Capture efficiency

DE = Control device destruction

(Basis: Regulation 2-1-403)

37. Within 60 days of completing commissioning of S-1002, S-4033, S-4036, S-4037, S-4038, S-4039, A-1002, A-1007, A-30180, A-30181, A-30182, and A-30183, and once every year thereafter, the owner/operator of S-1002, S-4033, S-4036, S-4037, S-4038, S-4039, A-1002, A-1007, A-30180, A-30181, A-30182, and A-30183 shall conduct Air District approved source test to determine compliance with the Part 8, 9, 10, 17, 18, 19, and 27 of this permit condition.

(Basis: Cumulative Increase)

38. The owner/operator shall conduct Air District approved source test to determine the transfer efficiencies of the coating applicator system by the methods detailed in the EPA's Protocol for Determining the Daily Volatile Organic Compound Emission Rate of Automobile and Light-Duty Truck Primer-Surfacer and Topcoat Operations (dated September 2008)

(Basis: Cumulative Increase)

39. The owner/operator shall conduct all source tests required by this Permit Condition at the highest

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production rate that system is capable of operating at, and at the highest emission rate that system can emit during highest production rate unless other conditions are required by the applicable test method.  
(Basis: Regulation 2-1-403)

40. The owner/operator shall get an approval for all source test sampling ports and platform locations prior to constructing South Paint Shop coating line.  
(Basis: Regulation 2-1-403)
41. The owner/operator shall submit and obtain approval of all source test procedures from the Manager of the Air District's Source Test Section prior to conducting any source test. The owner/operator shall comply with all applicable source testing requirements as specified in Volume IV of the Air District's Manual of Procedures. The owner/operator shall notify the Manager of the Air District's Source Test Section, in writing, of the source test protocols and projected test dates at least seven (7) days prior to testing.  
(Basis: Cumulative Increase)
42. Within 60 days of the completion of any source testing, a report documenting the results shall be provided to the Air District. This 60 day period may be extended to 90 days, if the owner/operator can demonstrate to the satisfaction of the APCO that the additional time is required. If source testing indicates any violation of the permit conditions, the owner/operator shall report such violation to the Air District's Director of Enforcement and Air District Permit Engineer within 10-days of determining that a violation has occurred and also within the final report.  
(Basis: RACT, Cumulative Increase)
43. The owner/operator shall report any non-compliance with Parts 2, 8, 9, 10, 17, 18, 19, and 27 of this permit condition to the Air District's Director of the Compliance & Enforcement Division and Air District Permit Engineer at the time that it is discovered. The submittal shall detail the corrective action taken and shall include the data showing the exceedance as well as the time of occurrence.  
(Basis: Cumulative Increase, Regulation 2-5)

**Record Keeping:**

44. To determine compliance with Part 2 of this permit condition the owner/operator shall submit a monthly compliance report showing coating, purge solvents, sealants, and final repair materials, usages and calculated emissions to the Division Director of the Air District's Engineering Division and the Compliance & Enforcement Division. The format and content of the compliance report must be submitted to the division directors above for approval. If an exceedance in Part 1 is recorded, Tesla shall submit calculations of all POC/NPOCs and TACs in a written report in order to demonstrate that South Paint Shop sources will not exceed the overall emissions limit specified in Part 2 of this permit condition. The owner/operator shall report to the Air District and to the EPA any non-compliance in accordance with Major Facility Review permit and shall make all attempts to come back into compliance.  
(Basis: Record Keeping)
45. In order to demonstrate compliance with Part 8 of this permit condition the owner/operator shall include monthly natural gas usage in the compliance reports submitted per Part 44.  
(Basis: Regulation 2-1-403)
46. Should POC emissions exceed the limit in Parts 2 of this permit condition, the owner/operator shall submit an application for a change of permit conditions within 90 days of exceeding a limit in Part 2.  
[Basis: Cumulative Increase, BACT/TBACT, Offsets]
47. The owner/operator shall maintain a current listing of the chemical composition, including the weight percent of each component, from the manufacturer of each coating and material used at S-1002, S-4036, S-4037, S-4038, S-4039, S-4040, S-4041, S-4042. The data may consist of Material Safety Data Sheets, manufacturer's formulation data, or both. The data shall be kept on file for a period of at least five years and shall be made

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available to the APCO upon request.  
(Basis: Recordkeeping)

48. The owner/operator shall keep production, usage, VOCs, solids content, and emission calculation records on a monthly basis for each coating or material used. The records shall be kept in a format acceptable to the APCO, and as a minimum, shall indicate the following:
- a. The number of production days per month.
  - b. For each coating or material: Monthly records showing:
    - i. The pounds of VOCs per gallon as applied. The VOC content should include acetone if required by Regulation 8, Rule 13;
    - ii. The solids volume fraction.
  - c. The calculated average monthly VOC emission rate in pounds per gallon of applied coating solids.  
(Basis: Regulation 8-13)
49. To determine compliance with the above parts, the owner/operator of A-30185, A-30186, and A-30187 shall maintain the following records and provide all the data necessary to evaluate compliance with the above parts including the following information:
- a. Records of all the inspections of the filter house. A record of each inspection shall consist of a log containing the date of inspection and the initials of the personnel that inspected the filter house;
  - b. The number and type of filters replaced in the filter house. The record shall consist of a log containing the date and time of filters replaced and initial of the personnel that replaced the filters;
  - c. The record of pressure drop across the filter house on daily basis;
  - d. The owner/operator shall retain records of source test results and any related correspondence with the Air District.  
(Basis: Record Keeping, Cumulative Increase, Toxic)
50. All records shall be retained on-site for five years from the date of entry and shall be made available for inspection to Air District staff upon request. The records may be in the form of computer-generated data, which is available to Air District personnel on short notice (rather than actual paper copies). These record-keeping requirements shall not replace the record-keeping requirements contained in any applicable Air District regulations.  
(Basis: Record keeping)

**Permit Condition 27163:**

**Conditions Pertaining to 40 CFR 63, Subpart IIII “National Emission Standards for Hazardous Air Pollutants: Surface Coating of Automobiles and Light-Duty Trucks” Requirements:**

1. The owner/operator of S-1002, S-4036, S-4037, S-4038, S-4039, S-4040, S-4041, S-4042 shall limit combined organic HAP emissions to the atmosphere from coating, purge solvents, and final repair operations plus all thinners, except for deadener materials and for adhesive and sealer materials that are not components of glass bonding systems, used in coating operations added to the affected source pursuant to 40 CFR 63.3082(c) to no more than 0.060 kg/liter (0.50 lb/gal) of applied coating solids used during each month, determined according to the requirements in 40 CFR 63.3171.  
(Basis: 40 CFR, Part 63, Subpart IIII; 40 CFR 63)
2. The owner/operator of S-1002, S-4036, S-4037, S-4038, S-4039, S-4040, S-4041, S-4042 shall limit average organic HAP emissions from all adhesive and sealer materials other than materials used as components of glass bonding systems to no more than 0.010 kg/kg (lb/lb) of adhesive and sealer material used during each month.  
(Basis: 40 CFR, Part 63, Subpart IIII; 40 CFR 63)
3. The owner/operator shall develop and implement a work practice plan to minimize the organic HAP emissions from the storage, mixing and conveying of coatings, thinners, and cleaning materials used in, and waste materials generated by all coating operations. The work practice plan shall specify practices and procedures to ensure that, at a minimum, the following elements are implemented consistent with the requirements of 40 CFR 63.3094:  
The owner/operator shall always comply with the applicable work practice plans .



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- i. All organic-HAP-containing coatings, thinners, cleaning materials, and waste materials must be stored in closed containers.
- ii. The risk of spills of organic-HAP containing coatings, thinners, cleaning materials, and waste materials must be minimized.
- iii. Organic-HAP-containing coatings, thinners, cleaning materials, and waste materials must be conveyed from one location to another in closed containers or pipes.
- iv. Mixing vessels, other than day tanks equipped with continuous agitation systems, which contain organic-HAP-containing coatings and other materials must be closed except when adding to, removing, or mixing the contents.
- v. Emissions of organic HAP must be minimized during cleaning of storage, mixing, and conveying equipment.
- vi. Organic HAP emissions from cleaning and from purging of equipment associated with all coating operations must be minimized by a plan addressing:
  - 1. Vehicle body wipe pursuant to 40 CFR 63.3094(c)(1)(i) and/or applicable requirement;
  - 2. Coating line purging pursuant to 40 CFR 63.3094(c)(1)(ii) and/or applicable requirement;
  - 3. Coating system flushing pursuant to 40 CFR 63.3094(c)(1)(iii) and/or applicable requirement;
  - 4. Cleaning of spray booth grates pursuant to 40 CFR 63.3094(c)(1)(iv) and/or applicable requirement;
  - 5. Cleaning of spray booth walls pursuant to 40 CFR 63.3094(c)(1)(v) and/or applicable requirement;
  - 6. Cleaning of spray booth equipment pursuant to 40 CFR 63.3094(c)(1)(vi) and/or applicable requirement;
  - 7. Cleaning of external spray booth areas pursuant to 40 CFR 63.3094(c)(1)(vii) and/or applicable requirement;
  - 8. Additional housekeeping measures pursuant to 40 CFR 63.3094(c)(1)(viii) and/or applicable requirement.

The owner/operator may choose to comply with an alternative to the work practice standard, after receiving prior approval from the USEPA in accordance with 40 CFR 63.6(g).

Copies of the current work practice plan and any earlier plan developed within the past 5 years shall be made available for inspection to the APCO upon request.  
 (Basis: 40 CFR, Part 63, Subpart IIII; 40 CFR 63.3094)

- 9. For any coating operation(s) for which HAP emission reductions due to the use of add-on control equipment are relied upon to demonstrate compliance with emission limits, the owner/operator shall meet the operating limits specified in Table 1 of 40 CFR 63, Subpart IIII as identified below. The operating limits in Table 1 apply to the emission capture and add-on control systems on the coating operations. The owner/operator must establish the operating limits during the performance test according to the requirements in 40 CFR 63.3167. The operating limits shall be met at all times after they are established, except for periods of startup, shutdown and malfunction.  
 (Basis: 40 CFR, Part 63, Subpart IIII; 40 CFR 63.3093, 40 CFR 63.3100(b) and (d) and Table 1)

Add-On Control Device	Operating Limit
Thermal Oxidizer	The average combustion temperature in any 3-hour period must not fall below the combustion temperature limit established according to 40 CFR 63.3167(a).
Concentrators, Including Zeolite Wheels and Rotary Carbon Adsorbers	The average desorption gas inlet temperature in any 3-hour period must not fall below the limit established according to 40 CFR 63.3167(e).
Emission Capture System that is a Permanent Total Enclosure (PTE), Except for Downdraft Spray Booths, Flash-Off Areas, or Bake Ovens Associated with Downdraft Spray Booths	The direction of the air flow at all times must be into the enclosure; and either: The average facial velocity of air through all-natural draft openings in the enclosure must be at least 200 feet per minute; or, The pressure drop across the enclosure must be at least 0.007-inch water, as established in Method 204 of Appendix M to 40 CFR 51.

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Add-On Control Device	Operating Limit
Emission Capture System that is not a PTE, Except for D downdraft Spray Booths, Flash-Off Areas, or Bake Ovens Associated with D downdraft Spray Booths	The average gas volumetric flow rate or duct static pressure in each duct between a capture device and add-on control device inlet in any 3-hour period must not fall below the average volumetric flow rate or duct static pressure limit established for that capture device according to 40 CFR 63.3167(f).

10. The owner/operator of S-1002, S-4036, S-4037, S-4038, S-4039, S-4040, S-4041, S-4042 shall develop and implement a written startup, shutdown and malfunction plan (SSMP) in accordance with 40 CFR 63.6(e)(3). This plan must address the startup, shutdown and corrective actions in the event of a malfunction of any emission capture system or add-on control device upon which compliance with any of the emission limits depends. The SSMP must also address any coating operation equipment that may cause increased emissions or that would affect capture efficiency if the process equipment malfunctions, such as conveyors that move parts among enclosures.  
 (Basis: 40 CFR, Part 63, Subpart III; 40 CFR 63.3100(f))
11. The owner/operator of S-1002, S-4036, S-4037, S-4038, S-4039, S-4040, S-4041, S-4042 shall operate and maintain coating operations including any emission capture system or add-on control device upon which compliance with any of the emission limits depends according to the provisions in 40 CFR 63.6(e)(1)(i).  
 (Basis: 40 CFR, Part 63, Subpart III; 40 CFR 63.3100(d))
12. The owner/operator of S-1002, S-4036, S-4037, S-4038, S-4039, S-4040, S-4041, S-4042 shall maintain a log detailing the operation and maintenance of any emission capture system, add-on control device, or continuous parameter monitor upon which compliance with any of the emission limits depends. The log shall cover the period between the compliance date specified in 40 CFR 63.3083 and the date when the initial emission capture system and add-on control device performance tests have been completed, as specified in 40 CFR 63.3160.  
 (Basis: (40 CFR, Part 63, Subpart III; 40 CFR 63.3100(e))
13. The owner/operator shall perform the applicable performance tests and compliance demonstrations in accordance with 40 CFR 63.3150-3152, 40 CFR 63.3160-3161, 40 CFR 63.3163-3168, 40 CFR 63.3170-3171, and 40 CFR 63.3173.  
 (Basis: 40 CFR, Part 63, Subpart III)
14. The owner/operator of S-1002, S-4036, S-4037, S-4038, S-4039, S-4040, S-4041, S-4042 shall determine the mass fraction of each organic HAP for each material used according to the procedures established under 40 CFR 63.3151(a)(1) through (5). The owner/operator may use USEPA Method ALT-017 as an alternative for any material used, after demonstrating to the APCO that its use as an alternative test methodology for that material, has been approved by the USEPA pursuant to the requirements of 40 CFR 63.3151(a)(3) and 40 CFR 63.7.  
 (Basis: 40 CFR, Part 63, Subpart III; 40 CFR 63.7, 40 CFR 63.3151)
15. The owner/operator of S-1002, S-4036, S-4037, S-4038, S-4039, S-4040, S-4041, S-4042 shall conduct an initial compliance demonstration for the initial compliance period described in 40 CFR 63.3150-3151, 40 CFR 63.3160-3161, or 40 CFR 63.3170-3171. The initial compliance period begins on the applicable compliance date specified in 40 CFR 63.3083 and ends on the last day of the month following the compliance date. If the initial date occurs on any day other than the first day of a month, then the initial compliance period extends through the end of that month plus the next month.  
 (Basis: 40 CFR, Part 63, Subpart III; 40 CFR 63.3150, 40 CFR 63.3160, 40 CFR 63.3170, 40 CFR 63.3083(a) and (b))
16. The owner/operator of S-1002, S-4036, S-4037, S-4038, S-4039, S-4040, S-4041, S-4042 shall install, operate and maintain each Continuous Parameter Monitoring System (CPMS) according to the requirements of 40 CFR 63.3168(a). If the capture system contains a bypass line, the owner/operator shall comply with the requirements

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of 40 CFR 63.3168(b).

(Basis: 40 CFR, Part 63, Subpart IIII; 40 CFR 63.3168)

17. The owner/operator shall keep all records as required by 40 CFR 63.3130 in the format and timeframes outlined in 40 CFR 63.3131.

(Basis: 40 CFR, Part 63, Subpart IIII; 40 CFR 63.3152(c), 40 CFR 63.3163(j))

18. The owner/operator shall maintain, at a minimum, the following records as of the applicable compliance date, for each compliance period:

a. A copy of each notification and report that is submitted to comply with 40 CFR, Part 63, Subpart IIII and the documentation supporting each notification and report.

(Basis: 40 CFR, Part 63, Subpart IIII; 40 CFR 63.3130(a))

b. A current copy of information provided by materials suppliers or manufactures, such as manufacturer’s formulation data, or test data used to determine the mass fraction of organic HAP for each coating, thinner and cleaning material, the density for each coating and thinner, and the volume fraction of coating solids for each coating.

(Basis: 40 CFR, Part 63, Subpart IIII; 40 CFR 63.3130(b))

c. For each coating or thinner used, the volume used in each month, the mass fraction organic HAP content, the density, and the volume fraction of solids.

(Basis: (40 CFR, Part 63, Subpart IIII; 40 CFR 63.3130(c))

d. Calculations of the organic HAP emission rate in pounds per gallon of applied coating solids. These calculations and records must include all raw data, algorithms, and intermediate calculations. If the “Protocol for Determining Daily Volatile Organic Compound Emission Rate of Automobile and Light-Duty Truck Topcoat Operations,” EPA-450/3-88-018 (Docket ID No. OAR-2002-0093 and Docket ID No. A-2001-22), is used, all data input to this protocol must be recorded. If these data are maintained as electronic files, the electronic files, as well as any paper copies must be maintained.

(Basis: 40 CFR, Part 63, Subpart IIII; 40 CFR 63.3130(c), 40 CFR 63.3163, 40 CFR 63.3173)

e. The name, volume, mass fraction organic HAP content and density of each cleaning material used.

(Basis: 40 CFR, Part 63, Subpart IIII; 40 CFR 63.3130(d) - (f))

f. Any records pertaining to deviations; startup, shutdown or malfunctions; emission capture systems; performance testing; capture and control efficiency determinations; transfer efficiency determinations; work practice plans; and design and operation of control and monitoring systems for any emission capture system or add-on control device upon which compliance with any of the emission limits depends, pursuant to 40 CFR 63.3130(g) through (o).

(Basis: 40 CFR, Part 63, Subpart IIII; 40 CFR 63.3130(g) – (o))

g. Records pertaining to the design and operation of control and monitoring systems for any emission capture system or add-on control device upon which compliance with any of the emission limits depends must be maintained on-site for the life of the equipment in a location readily available to plant operators and Air District inspectors.

(Basis: 40 CFR, Part 63, Subpart IIII; 40 CFR 63.3130(o))

19. For coating operations using add-on controls, the owner/operator shall demonstrate continuous compliance with the operating limits specified in Table 1 of 40 CFR, Part 63, Subpart IIII for any emission capture system or add-on control device upon which compliance with any of the emission limits depends pursuant to 40 CFR 63.3163 and 40 CFR 63.3173 using the method(s) described below:

(Basis: 40 CFR, Part 63, Subpart IIII; 40 CFR 63.3163, 40 CFR 63.3173 and Table 1)

<b>Add-On Control Device</b>	<b>Operating Limit</b>	<b>Continuous Compliance Demonstration Method</b>
Thermal Oxidizer	The average combustion temperature in any 3-hour period must not fall below the combustion	a. Collect the combustion temperature data according to 40 CFR 63.3168(c);

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<b>Add-On Control Device</b>	<b>Operating Limit</b>	<b>Continuous Compliance Demonstration Method</b>
	temperature limit established according to 40 CFR 63.3167(a).	b. Reduce the data to 3-hour block averages; and c. Maintain the 3-hour average combustion temperature at or above temperature limit.
Concentrators, Including Zeolite Wheels and Rotary Carbon Adsorbers	The average desorption gas inlet temperature in any 3-hour period must not fall below the limit established according to 40 CFR 63.3167(e).	a. Collect the temperature data according to 40 CFR 63.3168(f); b. Reduce the data to 3-hour block averages; and c. Maintain the 3-hour average temperature at or above the temperature limit.
Emission Capture System that is a Permanent Total Enclosure (PTE), Except for Downdraft Spray Booths, Flash-Off Areas, or Bake Ovens Associated with Downdraft Spray Booths	The direction of the air flow at all times must be into the enclosure; and either:  The average facial velocity of air through all-natural draft openings in the enclosure must be at least 200 feet per minute; or,  The pressure drop across the enclosure must be at least 0.007-inch water, as established in Method 204 of Appendix M to 40 CFR 51.	a. Collect the direction of air flow, and either the facial velocity of air through all-natural draft openings according to 40 CFR 63.3168(g)(1) or the pressure drop across the enclosure according to 40 CFR 63.3168(g)(2); and b. Always maintain the facial velocity of air flow through all-natural draft openings or the pressure drop at or above the facial velocity limit or pressure drop limit and maintaining the direction of air flow into the enclosure .
Emission Capture System that is not a PTE, Except for Downdraft Spray Booths, Flash-Off Areas, or Bake Ovens Associated with Downdraft Spray Booths	The average gas volumetric flow rate or duct static pressure in each duct between a capture device and add-on control device inlet in any 3-hour period must not fall below the average volumetric flow rate or duct static pressure limit established for that capture device according to 40 CFR 63.3167(f).	Collecting the gas volumetric flow rate or duct static pressure for each capture device according to 40 CFR 63.3168(g); Reducing the data to 3-hour block averages; and Maintaining the 3-hour average gas volumetric flow rate or duct static pressure for each capture device at or above the gas volumetric flow rate or duct static pressure limit.

**Permit Condition 27164:**

Startup (Commissioning) Condition for South Paint Shop Modification Project:

1. The owner/operator of the South Paint Shop Sources (S-1001, S-1002, S-1005, S-1007, S-4033, S-4034, S-4035, S-4036, S-4037, S-4038, S-4039, S-4040, S-4041, S-4042, and S-4043) may conduct commission activities prior to issuance of the Authority to Construct for the sources and conclude no later than May 31, 2020. Parts 1 through 11 of Permit Condition 27161 shall only apply during the commission period. (Basis: Cumulative Increase, Regulation 2-1-320, BACT/TBACT)
2. The owner/operator of the South Paint Shop (S-1001, S-1002, S-1005, S-1007, S-4033, S-4034, S-4035, S-4036, S-4037, S-4038, S-4039, S-4040, S-4041, S-4042, and S-4043) can paint no more than 100 car bodies during commissioning activities. (Basis: Tesla)
3. The owner/operator of the South Paint Shop Sources (S-1001, S-1002, S-1005, S-1007, S-4033, S-4034, S-4035, S-4036, S-4037, S-4038, S-4039, S-4040, S-4041, S-4042, and S-4043) shall minimize emissions from

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South Paint Shop Sources (S-1001, S-1002, S-1005, S-1007, S-4033, S-4034, S-4035, S-4036, S-4037, S-4038, S-4039, S-4040, S-4041, S-4042, and S-4043) to the maximum extent possible during the commissioning period.

(Basis: Cumulative Increase, Regulation 2-1-320, BACT/TBACT )

4. The owner/operator of the South Paint Shop Sources (S-1001, S-1002, S-1005, S-1007, S-4033, S-4034, S-4035, S-4036, S-4037, S-4038, S-4039, S-4040, S-4041, S-4042, and S-4043) shall comply with Permit Condition # 27161 during the commissioning period whenever possible. If during the commission period, the owner/operator determines that they cannot comply with one or more parts of Permit Condition # 27161, then the owner/operator shall report this non-compliance in a deviation report to the Compliance and Enforcement Division within 10-days of discovery.  
(Basis: 40 CFR Part 63.3120)
5. The owner/operator of the South Paint Shop Sources (S-1001, S-1002, S-1005, S-1007, S-4033, S-4034, S-4035, S-4036, S-4037, S-4038, S-4039, S-4040, S-4041, S-4042, and S-4043) shall not exceed any monthly and annual emissions limits specified in Permit Condition # 27161, Part 2a during the commissioning period.  
(Basis: Cumulative Increase, Regulation 2-1-320, BACT/TBACT )
6. The owner/operator of the South Paint Shop Sources (S-1001, S-1002, S-1005, S-1007, S-4033, S-4034, S-4035, S-4036, S-4037, S-4038, S-4039, S-4040, S-4041, S-4042, and S-4043) shall count and include all emissions occurring during the commissioning period in the total emissions summary to verify compliance with the emission limits specified in Permit Condition 27161, Part 2a.  
(Basis: Cumulative Increase, Regulation 2-1-320, BACT/TBACT)
7. Beginning March 5, 2020, Facility shall provide monthly status reports no later than the fifth day of every month. Each monthly status report shall identify and describe the activities that were conducted in the previous month, the quantities of sealant and coatings applied and/or transferred, the quantity of fuel consumed in burners, and the emissions associated with these activities. The Monthly Status Report requirement shall cease upon completion of commissioning activities. Monthly Status Reports shall be made in writing and shall be mailed, faxed, emailed, or otherwise delivered to:

**BAY AREA AIR QUALITY MANAGEMENT DISTRICT**

Attn: Director of Compliance and Enforcement Division  
375 Beale Street  
SAN FRANCISCO, CALIFORNIA

With copy to:  
BAY AREA AIR QUALITY MANAGEMENT DISTRICT LEGAL COUNSEL  
ALEXANDER CROCKETT  
375 BEALE STREET  
SAN FRANCISCO, CALIFORNIA  
[ACROCKETT@BAAQMD.GOV](mailto:ACROCKETT@BAAQMD.GOV)

**Recommendations**

Issue an Authority to Construct for the following:

- S-1001 E-Coat Dip Tank System
- S-1002 E-Coat Oven with Built in E-Coat Sanding Air Supply House (ASU);  
Abated by A-1002 E-Coat Thermal Oxidizer
- S-4042 Pretreatment Dip Tank
- S-1005 Underbody Sealing
- S-1007 Sealer Oven  
Abated by A-1007 Sealer Thermal Oxidizer

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- S-4043 E-Coat Sanding Booth
- S-4033 LASD Sealing with built in Air Supply House (ASU);
- S-4034 Interior Sealing;
- S-4035 Manual Sealing;
- S-4036 Prime Booth & Flash Zone with built in Air Supply House (ASU);  
Abated by Thermal Oxidizer A-30180, Water Scrubber A-30184, and Filter House A-30185
- S-4037 Basecoat Booth & Flash Zone with built in Air Supply House (ASU);  
Abated by Thermal Oxidizer A-30181, Water Scrubber A-30184, and Filter House A-30186
- S-4038 Clearcoat Booth with built in Air Supply House (ASU);  
Abated by Thermal Oxidizer A-30182, Water Scrubber A-30184, and Filter House A-30187
- S-4039 Primer and Clearcoat Oven;  
Abated by Thermal Oxidizer A-30183
- S-4040 Final Repair; and
- S-4041 Purge Solvents used inside Prime, Basecoat, and Clearcoat booths  
Abated by Thermal Oxidizer A-30180, A-30181, and A30182

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Madhav Patil

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Date